

### 3<sup>rd</sup> Harmonic Monday Meeting Minutes

**Date:** June 5, 2006

**Time:** 10:30 A.M.

**Place:** ICB Trailer 157 Conference Room

Attendees (P=Present):

C. Antoine	P	H. Carter		E. Harms	P	A. Rowe	
T. Arkan		C. Cooper		T. Khabiboulline	P	N. Solyak	P
P. Bauer	P	H. Edwards		D. Mitchell		C. Grimm	
L. Bellantoni		M. Foley	P	D. Olis	P		
C. Boffo		C. Ginsburg		P. Pfund	P		

Minutes recorded by Dan.

Minutes are posted at: [http://tdserver1.fnal.gov/dolis/39GHz\\_minutes.html](http://tdserver1.fnal.gov/dolis/39GHz_minutes.html)

#### Minutes of the meeting

##### Chemistry/Processing

- Cavity-2, second test again showed high power losses (not seen in 3-cell tests). Timer's best guess is multipacting in region of HOM body between antenna and can wall. Temperature sensors installed during test were not functional to verify local heating. 3-D analysis using STAR software shows 2-point multipacting could be an issue. An analysis on 1.3 HOM body will also be done for comparison. Cavity was also stretched inadvertently by approximately 0.7mm between tuning and installation into vertical test. Timer noted change in natural frequency. Measurement with calipers verified this.
- Next cooldown expected Tuesday, June 6. Cavity has been re-compressed back to the correct length. Temperature sensor problem remedied and will again look for local heating in HOM body. HOM body will also be tuned to a different frequency as another test for multipacting.
- General discussion on how to remedy multipacting issue if it is indeed the problem. Gap between curved portion of antenna and HOM body is small for welding considerations. A re-design and replacement was discussed. Mike Foley will suspend fabrication of cavity end groups until problem and solution is defined.

##### HOM Couplers

- Elvin and Mike Yeoward visited Ceramtec last week.
- Elvin reports:

Our trip to SC was fruitful in that we learned that the feedthroughs supplied to JLab were brazed in a multi- step process with the Nb antenna being attached at JLab. Fermilab had specified a single braze of all parts. It was concluded that Cermatech could do the brazing on ours in multiple steps at progressively cooler temperatures with the Nb antenna last and using a paste instead of braze ring.

The initial pin to insulator brazes are always hermetic, it's the succeeding step where problems occur. We're waiting on word of the latest batch.

On a positive note, we learned that they subject the pieces to a controlled cooldown to LN2 temperatures on every cycle and have extensive QC measurements which we had not specified. Also, the one piece we do have was cooled to 2K here last week and was leak checked fine afterwards to  $4.5E-11$